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Fletcher, M. and Prashantham, S. (2011) *Knowledge assimilation processes of rapidly internationalising firms: longitudinal case studies of Scottish SMEs*. *Journal of Small Business and Enterprise Development*, 18 (3). pp. 475-501. ISSN 1462-6004

<http://eprints.gla.ac.uk/44181>

Deposited on: 02 September 2011

Knowledge Assimilation Processes of Rapidly Internationalising Firms:

Longitudinal case studies of Scottish SMEs

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Abstract

Purpose: The accumulation of knowledge and learning by firms has been identified as critical to their internationalisation. This article explores knowledge assimilation processes of rapidly internationalising SMEs.

Design: This is a qualitative enquiry in two stages. First, four case-studies were selected from firms that were participating on an internationalisation programme run by Scottish Enterprise, the regional development agency. Data collection involved semi structured interviews with CEOs and programme providers, and archival data. Second, two focus groups were held with six CEOs participating in the programme.

Findings: Our findings indicate that knowledge sharing is important for rapidly internationalising SMEs and that firms adopted high levels of formality in assimilating knowledge. Two key aspects of formality were identified as important; formal planned events to share explicit and tacit knowledge and the codification of tacit to explicit knowledge. Knowledge may be assimilated less formally by the retention of tacit knowledge as tacit, while utilising elements of formality. We find that learning for internationalisation can be transferred to support domestic growth

Practical implications: It is important for firms to develop appropriate knowledge assimilation processes within their management systems to support internationalisation. The CEO and management

team need to take the lead in marshalling commitment to learning processes and to cultivate an organisational culture that is supportive of learning.

Originality: This research contributes to international entrepreneurship by providing insights into the knowledge assimilation processes employed by rapidly internationalising SME to manage the tensions between the need for greater formality to be efficient at learning, and informality to enable speedy decision-making.

Type of paper: Research paper

Keywords: Knowledge Assimilation, SME Learning, SME Internationalisation, International entrepreneurship

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1. INTRODUCTION

The accumulation of knowledge and learning by small and medium sized enterprises (SMEs) has been recognised as having a key influence on their internationalisation (Johanson and Vahlne, 1977, 1990; Oviatt and McDougall, 1994, Jones and Coviello, 2005). Increasingly efficient international markets has given rise to an increasing number of small firms operating in international markets (European Commission, 2004). As small firms are internationalising more rapidly and earlier than before, this has generated a growing interest in understanding how they these firms gain sustainable competitive advantage (Zahra, 2005). Internationalisation is a learning intensive process (Johanson and Vahlne, 2009), which is reflected in a growing recognition of the importance of learning to rapidly internationalising SMEs' success and growth (Jones and Coviello, 2005; Oviatt and McDougall, 2005). However, there are gaps about what and how these firms learn in the global market place (Zahra, 2005).

There is growing interest in the role of organisational learning in SMEs (Gibb, 1997; Phelps, Adams and Bessant, 2007). Prior research has documented the importance of learning for growth-oriented SMEs (Liao, Welsch and Stoica, 2003). Furthermore learning is an integral part of their entrepreneurial orientation and activities (Lumpkin and Dess, 1996). However SME learning also represents a considerable challenge given these firms' lack of resources to devote to learning efforts (Brush, Greene, and Hart, 2001). This study explores the knowledge assimilation process used by rapidly internationalising SMEs. Knowledge assimilation has been identified as a key component of organisational learning and absorptive capacity (Cohen and Levinthal, 1990; Zahra and George, 2002). The capacity to successfully assimilate new knowledge is integral to firms' competitive advantage (Zahra and George, 2002). SMEs are often characterised as having informality in their organisational structures (Levy and Powell, 2000), however firms needs to increase formalisation to support growth (Churchill and Lewis 1983; Scott and Bruce, 1987). In order to investigate knowledge assimilation processes, we address the following research questions: what knowledge assimilation processes do rapidly internationalising SMEs employ, to what extent are they formal or informal processes, what influences the knowledge assimilation processes over time and how do rapidly internationalising firms use knowledge assimilation to support accelerated decision-making?

The research approach is a qualitative, longitudinal enquiry which allows the study of processes which are likely to change over time and provide deep insights into how internationalising firms assimilate knowledge (Yin, 2009; Saunders, Lewis and Thornhill, 2009). The study is in two stages. First, four

longitudinal case studies enabled the exploration of firms' internationalisation behaviour and knowledge assimilation processes over three years and second, focus groups enabled further insights into the processes of knowledge assimilation employed by firms. The firms selected for this research were participating in the Scottish Enterprise Global Companies Development Programme and were in the process of rapid internationalisation. A criterion of selection onto the programme was that firms had high international growth ambitions and thus fitted the aims of the research.

This research contributes to the international entrepreneurship (IE) literature by providing insights into the knowledge assimilation processes employed by rapidly internationalising SME. We find that rapidly internationalising SMEs use a high level of formal planned processes to assimilate learning. We explore how rapidly internationalising small firms manage the tension between formality and informality. Both more formal and less formal assimilation are supported by relatively high levels of formality in terms of planning. This is a novel and interesting finding that helps us understand better how rapidly internationalising firms resolve the tension of the need for both formality, to be efficient and informality, to enable speedy decision-making, to support their internationalisation.

The article proceeds as follows. First we explore the concept of knowledge assimilation and related aspects of formality in the context of rapidly internationalising SMEs and present the research questions. Drawing upon organisational learning, absorptive capacity and the knowledge based-view theoretical perspectives, we develop constructs. This is followed by the research methodology in which issues of sampling and analysis are discussed. We then highlight our findings in the research findings section, which is then followed by a discussion section where we present the contributions of the study, managerial and policy implications and limitations.

2. LITERATURE REVIEW

Rapid SME Internationalisation as a Learning-intensive Process

Learning processes are vitally important to rapidly internationalising SMEs' success and growth (Bingham, 2009; Fernhaber, McDougall-Covin and Shepherd, 2009; Jones and Coviello, 2005; Oviatt and McDougall, 2005). Knowledge is a key resource driving the international growth of smaller firms (Barrett and Wilkinson, 1985; Cavusgil and Godiwalla, 1982; Seringhaus, 1987; Yli-Renko et al, 2002). This is particularly true of SMEs that undertake internationalization as a strategy for growth (Autio et al, 2000; Cumming et al, 2009; Sapienza et al, 2006). A firm's capability to learn is vital to support speedy decision making in order to internationalize rapidly in the pursuit of growth (Autio et al, 2000; Oviatt and McDougall, 1995). It is such firms that the present study is concerned with.

The content of learning by rapidly internationalizing firms is typically varied. The accumulation of product and technological knowledge allows firms to recognise and exploit new productive

opportunities and is an important facilitating condition for international growth (Autio, 2005; Oviatt and McDougall 1994; Sapienza et al, 2005). Firm internationalisation is also facilitated by knowledge about specific markets (Johanson and Vahlne, 1977) which, in time, yields accumulated experience gained from operating in the international environment (Eriksson et al, 1997). Firms also accumulate internationalisation experience and knowledge which are firm specific, for example may include a particular firm's 'way of going international' and not market-specific (Eriksson et al, 1997:345). It concerns a firm's knowledge of its capabilities in engaging in international operations and of its resources for doing so. These are embedded in a firm's routines, procedures and structure (Eriksson et al, 2000). Such knowledge is generalisable from market to market and impacts on the firm's ability to gain experiential knowledge about foreign markets and institutions as well as the cost of internationalisation. Eriksson et al. (1997) argue that such accumulated experiential knowledge exerts an influence on the future internationalisation of the firm through its influence on information search processes.

The process of learning by rapidly internationalizing firms can be complex and idiosyncratic (Bingham, 2009), and may result from both internal and external sources (Fernhaber et al, 2009). Organisational learning depends on information distribution, communication, knowledge sharing and interpretation (Huber, 1991; Slater and Narver, 1995). Firms' ability to 'recognize the value of new external information, assimilate it, and apply it to commercial ends' is referred to as absorptive capacity (Cohen and Levinthal, 1990: 128). Zahra and George (2002) identified four key processes of absorptive capacity: acquisition, assimilation, transformation and exploitation of new knowledge. Of these, the focus of this paper is on assimilation which is a key component of organisational learning and absorptive capacity (Huber, 1991; Cohen and Levinthal, 1990; Zahra and George, 2002). Organisational learning involves the process of assimilation of new knowledge into the organisation's knowledge base.

Assimilation refers to the firms' routines and processes that allow it to analyse, process, interpret and understand the information obtained from external sources (Kim, 1998). Assimilation is a vital part of the learning process as it affects the transfer and comprehension of knowledge across and within units. A firm's assimilated knowledge is not resident in any single individual but depends on the links across a mosaic of individual capabilities (Cohen and Levinthal, 1990). Assimilation entails knowledge distribution (Huber, 1991) and dissemination (Slater and Narver, 1995); such sharing of knowledge and communication of expertise facilitates cross fertilisation between ideas and knowledge (Cohen and Levinthal, 1990; Huber, 1991).

Internationalising organisations assimilate both explicit and tacit knowledge (Kogut and Zander, 1993; Sapienza et al, 2006). Explicit knowledge is objective information. It can be scientific knowledge or

more localised in, such as, company rules or operating guidelines (Spender, 1994), for instance in the form of quantifiable data, coded procedures, universally accepted principles, scientific formulas, specific actions and manuals. Explicit knowledge is codifiable and thus easily transferable throughout the organisation (Nonaka, 1991; Nonaka et al, 2000). By contrast, tacit knowledge is embedded in individuals and cannot easily be expressed explicitly or codified in written form (Nonaka, 1994). It is subjective, experiential and hard to formalise, it is in the form of beliefs, perspectives, mental models, and ideals (Nonaka et al, 2000). Due to its unconscious nature and embeddedness in the specific context, tacit knowledge is difficult to articulate in a meaningful and complete way, from one individual to another (Kogut and Zander, 1992). It relates strongly to the argument that individuals know more than they can say and manifest that knowledge through their actions (Polyani, 1966; Spender, 1994; Simonin, 1999).

The acquisition and assimilation of tacit knowledge is mainly through experiential, learning-by-doing. This resonates with the internationalization literature which has traditionally emphasized experiential learning (Casillas et al, 2009; Eriksson et al, 1997; Johanson and Vahlne, 1977). As Nonaka and Toyama (2003: 6) note, tacit knowledge “can only be shared through direct experience”. Furthermore, “tacit knowledge is non-transferable without the exchange of key personnel and all the systems that support them” (Nonaka, Toyama and Nagata, 2000: 5). Thus there is a greater challenge in assimilating tacit knowledge rather than explicit knowledge (Grant, 1991; Nonaka, 1994). However as Li, Li and Dalgic (2004) note, internationalising SMEs may also undertake more systematic learning efforts based upon planning and execution. This seems plausible given the greater learning-intensity of internationalisation, as noted.

More versus Less Formal Assimilation in Rapidly Internationalising SMEs

Nummela et al. (2006) observe that rapidly internationalising SMEs need to adapt their internal structures to support their internationalisation. In their pioneering study of the organisational structures of UK SMEs, Burns and Stalker (1961) identified a continuum ranging from organic structures at one extreme to mechanistic structures on the other. Organic structures were characterised by decentralisation, informal processes and lateral communication, whereas mechanistic structures were centralised, formal and vertically controlled. This suggests that rapidly internationalising SMEs face choices in relation to how formal their knowledge assimilation might be.

By formal knowledge assimilation, we refer to planned, systematic processes such as scheduled, planned meetings or events (rather than informal, adhoc, unplanned and unstructured occurrences) and the use of a framework of written documentation to codify the knowledge (Fletcher and Harris, 2002; Levy and Powell, 2000). Thus we conceptualise formality as involving formal planning to transfer knowledge and the formal codification of knowledge from tacit to explicit. Although Crick and

Spence (2005) find that SMEs exhibit a range of behaviour from planned strategy formation to opportunistic, as such, the IE literature appears silent about the nature of knowledge assimilation in rapidly internationalising SMEs. In considering how knowledge is assimilated, this study therefore focuses on the extent to which these organisational processes are more or less formal.

Although the IE literature has not addressed this issue to any great extent, in the traditional exporting literature there appears to be a view that initially SMEs do not adopt a formal approach to learning. Rather it is generally posited that: 'In the initial stages, managers approach exporting in a rather informal, disjointed and unplanned manner...[subsequently] there is a gradual improvement in and formalization of export management systems' (Leonidou and Katsikeas, 1996: 535). This is consistent with Fletcher and Harris' (2002) observation in the domain of strategy-making, that SMEs increasingly develop formality around their discourse, moving from ad hoc occurrences to scheduled, formal planning episodes. However IE research has not examined if this is true of rapidly internationalising SMEs.

While formalisation enables SMEs to gain greater control over, and thus better coordinate, their organisational processes (Scott and Bruce, 1987), entrepreneurial behaviour is generally equated with the antithesis of formal planning and decision-making (Sarasvathi, 2001, 2008; Brown et al, 2001). SMEs may resist formalising in favour of keeping alive their entrepreneurial orientation and thereby fostering enhanced performance outcomes (Lumpkin and Dess, 1996). This may help SMEs to 'respond quickly to customers' requirements' (Levy and Powell, 2000: 68).

Notwithstanding the apparent tension between more and less formality in SMEs' organisational processes, Eisenhardt's (1990) pioneering study on the speed of strategic decision-making in entrepreneurial ventures highlights the likely coexistence of more and less formal attributes of organisational processes. She argues compellingly that ventures succeed in making rapid decisions when they process *more* information than slower decision-makers. It can be inferred that there may be fairly formal learning processes in order to acquire and assimilate substantial volumes of information. Furthermore, the involvement of multiple departments can increase decision-making speed by generating a greater number of alternatives and evaluating them through multiple perspectives (Eisenhardt, 1990). Equally, however, there may be less formal decision-making processes in order to accelerate strategic outcomes (Eisenhardt and Zbaracki, 1992).

It is important to consider – particularly for rapidly internationalising SMEs – the effects of CEOs' prior experience (Fernhaber et al, 2009; Reuber and Fischer, 1997). CEOs may adopt a more systematic approach to learning based upon knowledge assimilation routines that they were previously exposed to. Equally, there is a danger that some of their knowledge is less relevant to the present

context (Anand et al, 2002; Reuber & Fisher, 1997). Nonetheless, prior internationalisation experience seems likely to heavily influence how these firms deal with assimilating new knowledge. It is an under-explored area in the literature (Zahra, 2005). Greater levels of formalisation may be preferred by the top management team based on pre-founding experience (Burton, 2001). Alternatively informal control may be enforced by inculcating an autonomy-oriented organisational culture (Baron et al, 1999).

Synthesising the above literature, we argue that while learning processes – in particular assimilation – are conceivably important in absorbing explicit and tacit knowledge, little is known about how internationalising small firms engage in them. In particular, the foregoing review of the literature informs our study by directing our attention to three constructs that are important to our conceptualisation in this paper: first, formality in the form of planning which is manifested primarily through *planned* meetings or events to share knowledge; second, formality in assimilation i.e., converting tacit knowledge to explicit knowledge; third, informality in assimilation i.e., retaining tacit knowledge as tacit knowledge. We explore these aspects to better understand how rapidly internationalising SMEs assimilate knowledge. In so doing we endeavour to respond to Cumming et al's (2009: 284) call to advance research on "the *strategic* aspects of IE".

3. METHODOLOGY

Research Approach

This study aims to investigate how new knowledge acquired during the process of rapid internationalisation is assimilated by SMEs. This suggested a qualitative study of internationalising firms, in particular of CEOs that were driving the internationalisation of the firm. The research aim suggested an approach that would allow the process to be tracked over time, and access to fine-grained data from key informants responsible for the firms' internationalisation strategy. This approach is appropriate for this study, as it recognises that in these internationalising SMEs, business situations are complex, unique, and a function of a particular set of circumstances and individuals (Saunders et al, 2009). Following Eisenhardt (1989) and Yin (2009), this study employs a multiple case study approach, carried out over three years, to explore the knowledge assimilation processes of internationalising SMEs. This approach is particularly appropriate to explore possible relationships between concepts within complex empirical settings. Since knowledge assimilation has been the subject of prior research (for example see Nonaka, 1994; Nonaka and Toyama, 2003; Zollo and Winter, 2002) in order to avoid confirmatory evidence bias, an inductive approach was taken in the data collection, whereby data triangulation was through multiple interviews over time and multiple sources of information (Yin, 2009) and case triangulation through multiple cases Eisenhardt (1989). Following the analysis of the case studies, two group interviews of CEOs of internationalising firms were held to explore emergent issues from the case analysis.

Research Design

Sample recruitment

In recent years governments provide a range of support programmes to encourage SMEs to internationalise to promote wealth creation and international competitiveness (European Commission, 2004; Fernhaber, McDougall-Covin and Shepherd, 2009; Young and Tavares, 2007). Access was gained to firms that were participating in the Global Companies Development Programme (GCDP), which was launched in 2001 by Scottish Enterprise, the regional support agency, to assist Scottish firms to internationalise¹. It aimed to accelerate globalisation for SMEs by assisting firms to improve capabilities for and overcome barriers to internationalisation, and address market failures (for example access to information) that inhibit internationalisation (Scottish Enterprise, 2003; Raines and Brown, 2001). Each year a cohort of between 15 and 20 companies were recruited on the programme. It involved an initial 6 months training and consultancy to assist firm prepare an internationalisation action plan, with on-going support, and the creation of a network of participating firms who attended seminars, workshops and networking events. This was one of a range of different support programmes offered by Scottish Enterprise to all Scottish internationalising firms. To be selected onto the GCDP firms had to have aggressive international growth targets. Thus as firms were committed to rapid internationalisation and inherent learning involved in participating in the programme, this provided a relevant sample of SMEs to meet the research aims (Davidsson, 2008). It was possible to study firms' assimilation processes (Mahoney and Goetz, 2004) and gain access to 'information rich cases' (Patton, 2002). Although the sample is limited to firms participating in the programme and thus the generalisability of the findings, these firms were representative of Scottish SMEs with rapid internationalisation intentions. We define SMEs as firms with less than 250 employees (European Commission, 2001). Appendix 1 shows the stages within the research protocol which are discussed below.

Stage 1 - Case Studies

Selection of cases

Three year access to the first cohort of firms which participated in the programme was secured during 2003 to 2005. This involved interviews with CEOs and programme executives and managers. Archival data was systematically collected which included Scottish Enterprise records (database of firms, consultants' case studies, company profiles), company websites, news clipping and brochures. These enhanced the validity through cross checking. Fifteen firms had completed the programme in 2002 and were in the process of implementing their internationalisation strategy devised during the programme. Four cases studies were purposefully selected for appropriateness, purpose and access to

¹ This research forms part of a larger research and evaluation study.

good information, to study how knowledge assimilation occurs in rapidly internationalising SMEs (Paton, 2002). These firms permitted the exploration of SMEs firms of different sizes and states of internationalisation and supports call for research into mature firms (Fernhaber et al, 2009). Appendix 2 below provides key information on the case firms. Firm A, start up firm conceived by the CEO when the existing firm went into liquidation, was developing a new product to be manufactured in China. Firm B, an early stage spin-out was launching a new technology product in the US market. Firm C was expanding its US market and launching its technology based product in Europe. After 6 years of product development the firm started internationalisation in 1999. Firm D, a mature manufacturing company, start exporting in 1980s. The firm embarked on a rapidly internationalisation strategy in 2001 after the owner's son succeeded to the business, and entered new markets and expanded in several existing overseas markets.

First phase of research - Data collection and preliminary analysis

Introductory interviews with programme executives (which were taped and transcribed) and telephone interviews with each case study firm's local programme manager, were undertaken to secure information about the firms' the internationalisation plans and issues prior to contacting them. Monthly meetings with programme executives during the first two years of the study, which recorded through note taking and minutes of meetings, provided further validation of data. Access was agreed and semi-structured interviews were conducted with the CEOs of the case-study firms during 2003 as they implemented an internationalisation strategy developed during the formal programme from 2001-02. Each CEO was interviewed for approximately one hour, the interviews were recorded and transcribed. A case study schedule was prepared in advance of each interview containing background details of the company, and questions were prepared in advance. The interviews used open ended questions and supporting probes to explore points (Easterby-Smith *et al.*, 1991). During the first phase interviews, data was collected on the firms' internationalisation plans and strategy, activities and new knowledge required was identified in an action plan. Triangulation was used to validate the interview data (Yin, 2009). This was through the use of Scottish Enterprise archival records in the form of company profiles, which were prepared by programme managers at the beginning of the programme, consultants' reports on individual firms' internationalisation strategy action plan and meetings with programme managers discussed above. Preliminary analysis involved content analysis and coding data from all sources. At each phase of the research, the interviews were followed by numerous e-mails and telephone calls to the CEOs and programme executives to ascertain and confirm data.

Second phase of research

During the second phase interviews issues and problems arising as firms implemented their internationalisation strategy were identified. Triangulation was through CEO first year interviews in

phase one, archival data, monthly meetings with programme executives and telephone interviews with each firm's local programme manager.

Third phase of research

The third year interviews focused on organisational learning processes and knowledge assimilation. Firms identified and confirmed the main issues and problems as they internationalised and the resultant new areas of knowledge needed for internationalisation (see table 4 below). Data collected during years one and two was used as prompts. For each new knowledge area identified they discussed how new knowledge was assimilated within the firm. Questions addressed: how new knowledge was initially acquired; who in the firm initially acquired the knowledge; who in the company gained the expertise, have others used that knowledge; and how was it shared? New knowledge that firms need to acquire whilst internationalising were identified, interviewees then discussed who in the firm acquired the knowledge and if and how it was shared within the firm.

Overall Data Analysis

An individual case record was prepared for each of the four firms (Yin, 2009). Relevant data from the interviews, archival and secondary data was summarised and recorded on the case record. Within case-analysis was undertaken for each firm where the case data was categorised into knowledge assimilation constructs (new knowledge, recipients of the knowledge and the transfer process), and presented in a within case display using content summary tables as suggested by Miles and Huberman (1994) and Yin (2009). Next a further table was constructed which presented the displays and extended the analysis to include formality constructs that emerged from the data and theory; formal planned knowledge assimilation and tacit and explicit knowledge sharing processes. Cross case analysis was performed to compare these assimilation processes. Context specific factors were observed in the process of analysis.

Stage 2 – Group Interviews

Group interviews in the form of focus groups were held in 2008 to gain further insights into learning and assimilation processes. Focus groups are particularly useful when focused clearly on particular issues and encompass interactive discussion amongst participants (Saunders et al, 2009). A suitable sampling frame of CEOs of internationalising SMEs participating in the programme were identified from the Scottish Enterprise data base and were invited to attend the focus groups as part of a GCDP workshop. As the focus groups were not intended to be part of the case data triangulation but to give additional insights, it was deemed suitable to invite additional firms. These firms had similar characteristics in common with each other and the case study firms (Saunders et al, 2009). The CEOs were responsible for the firms' internationalisation strategy. The 4 CEOs of the case studies were invited but did not attend.

Six CEOs participated in the event (see Appendix 3 for details of the businesses). Two small groups were created as recommended by Saunders et al (2009) where complex subject matter requires small numbers in interviews, three were allocated to each group. Both focus groups were held for one hour, running concurrently and were taped and transcribed. CEO1, 2 and 3 participated in group one and CEO4, 5 and 6 in group two. Also in attendance in each group were three researchers (chair/lead facilitator, support facilitator and recorder), and a representative from Scottish Enterprise. During the focus groups themes which emerged from the case study analysis were explored further; for example how knowledge is transferred and codified, and influences. As the focus groups were conducted with similar participants, this enabled trends and patterns to be identified (Saunders et al, 2009). The discussions in each focus group were coded against inductive and theoretical codes and categorised into themes in word matrices, with supporting quotes from the CEOs. These categories included the formality of firms processes, factors influencing the extent of this formality, the role of CEOs' prior experience and tacit/explicit knowledge exchange. A follow up interview with a programme executive, e-mails and telephone calls to CEOs and archival data (company web sites, company profiles) corroborated focus group data.

4. RESEARCH FINDINGS

In this section we firstly present the case study findings, then incorporate the group interviews in order to address the research questions.

Formality and Informality of Knowledge Sharing of Rapidly Internationalising SMEs

Knowledge sharing process of case study firms

Knowledge sharing knowledge was important for all case study firms, i.e. at an early stage of internationalisation cases A and B and at more advanced levels, cases C and D.

Firm A was an early stage start-up firm. The CEO worked very closely with overseas partners/suppliers in Taiwan to manufacture the new product. Meetings were arranged with potential and new partners with all of the directors to keep them informed and regular meetings were planned with the CEO to share experience gained from overseas visits. The CEO used a consultant and publications to find out about Chinese and Taiwanese culture, all staff had access to the consultant and publications. The CEO stated:

‘We share everything, we spend a lot of time sharing because if you don’t share you can’t discuss, if you can’t discuss you can’t move forward, for example, when we are going to start working with a new company I tend to take the other staff to the first meeting’.

Firm B initially developed a technology product for the UK, then for the US market. It recruited a new director with extensive overseas experience to help to expand into additional international markets. His knowledge is shared with the CEO, management and employees of the firm. The CEO stated ‘we are learning from his coat tails’. This and other new knowledge is shared with the rest of the employees through formal planned meetings. The CEO stated:

‘The firm is run collectively, so that there are not too many topics where one individual has all of the knowledge. We make sure all the teams are well informed and information is shared’.

Firm C employed a new marketing manager to help it expand into European markets rather than a general manager based overseas. The new manager spent 50% of her time visiting the UK head office in order to share marketing knowledge and experience and formal market research which was undertaken in Germany with the management team in the UK. This was a low cost model, where the firm started with a marketing manager rather than general manager. The CEO stated:

‘The most important thing is to test the market; a general manager will build structure and not learn about the market. The European marketing manager has the first hand knowledge which is shared. We will use this model to expand to other European countries’.

In order to develop its product and support high growth in the US market, firm C embarked on a change programme which involved communication and knowledge sharing throughout the whole firm. Emphasis was placed on sharing tacit knowledge. A weekly lunch with all personnel was implemented, it was not mandatory but most staff attended. This was linked with a weekly video conference with its US subsidiary. Knowledge and expertise was made explicit whereby presentations were made by managers and other employees, for example engineers, marketing, IT, R&D. Presentations were also made by external speakers, for example from senior staff at Scottish Enterprise. New formal administration systems were introduced to head office to improve the management information.

‘We communicate a lot, every Wednesday we organise lunch with our personnel and during these lunches there is always a presentation done by an employee, a manager, engineers from the development, or it could be marketing people explaining what is the situation in Germany and in the UK, and it is also linked with a video conference with America which means that what we are doing in R&D up to a certain point is known and it is shared with the rest of the company. It could also be financial presentation or IT strategy, you name it – everything which deserves to be communicated is communicated’.

Firm D’s international growth strategy involved opening a US subsidiary, and expanded its presence in European markets by extending its network of agent and distributors, franchising and improved its WEB design. Firm D had a very informal ethos, flat management structure and the CEO had been very

involved in controlling and co-ordinating work personally, stating he “had previously been very hands on with all projects”. The CEO has succeeded ownership of his family. As the firm internationalised, the CEO adopted an overseeing role and developed a more structured approach to support the firm's internationalisation. This involving creating two levels of senior and functional managers, delegation and project teams participating in decision making. Although new structures were introduced, the firm retained its informal ethos with open plan offices and informal communication was encouraged between all staff. To share and assimilate knowledge project teams were created amongst existing and new employees, for example with external consultants improve shop design and the firm's lawyers and consultants to develop a franchising model. When discussing the development of international franchising the CEO explained:

“The project team brings the project together, external consultants impart knowledge to team, the team puts in their knowledge required for the project. Once it is done that it is, we all gain the knowledge, and it is documented for prospective parties. We have involved lawyers, marketing and design managers who know about the day to day process and franchise consultants”.

The firm's internationalisation involved the recruitment of new sales employees to support existing overseas sales agents and employees. A training programme and sales conferences were held bring together sales employees and managers to share knowledge and experiences.

The case analysis revealed how new knowledge was acquired by firms in tacit and explicit form (Table 1 below). Tacit knowledge was acquired experientially for example, by the CEOs and management team visiting and operating in the market place; working with partners, suppliers. Whilst the firm's own experience was important, they also acquired tacit knowledge from others external to the firm by recruiting new employees, consultants' expertise, overseas government agencies and domestic support agencies, including advisors from the internationalisation programme. Explicit knowledge was acquired for specific purposes for example, from publications on foreign culture, technology reports, market research, using external trainers and formal legal and recruitment advice. CEOs recognised that important knowledge was held within the firm often initially by the CEO and other directors and as the firm internationalised, by other managers and employees (at home and abroad). During internationalisation, CEOs established processes to share and assimilate this tacit and explicit knowledge and to convert experiential, tacit to explicit knowledge.

Table 1: Knowledge Assimilation by Internationalising SMEs

Firm	New Knowledge Acquired	Knowledge Sharing	Knowledge Assimilation Processes	Formality in Knowledge Assimilation*
Firm A	<p>1. Firm's consumer market research and CEO's experience through market visits</p> <p>2. Develop alliances with overseas partners</p> <p>3. New product development and patenting</p>	<p>1. Knowledge of customer behaviour shared with importer/retailers agents via presentations</p> <p>2. All directors attend initial meeting with potential partners, overseas visit to partners and partners visit the UK and have access to consultant on Far East culture and publications</p> <p>3. Visit to overseas suppliers and meetings to share knowledge with directors</p>	<p>1. Formal presentations to partner</p> <p>2. Planned meetings and sharing of publications with employees</p> <p>3. Planned meetings with staff to disseminated knowledge gained from overseas visit</p>	<p>Planned Explicit</p> <p>Planned Explicit and tacit</p> <p>Planned Tacit</p>
Firm B	<p>1. Market experience and sourcing of partner to enter to US</p> <p>2. Market knowledge on international aviation and new director's experience</p> <p>3. Product development for UK and international markets</p>	<p>1. All information shared with employees through meetings and reports.</p> <p>Presentations to US partner, train partner's sales teams, partner visits UK head office</p> <p>2. New director shares knowledge by working with CEO and team</p> <p>3. Management and technical staff work closely with customers to develop product</p>	<p>1. Planned meetings with employees to share overseas market knowledge. Formal training programme provided to overseas partner</p> <p>2. Structured approach to sharing new director's experiential knowledge</p> <p>3. Contract alliance with customers to knowledge exchange</p>	<p>Planned Explicit and tacit</p> <p>Planned Explicit</p> <p>Planned Tacit</p> <p>Planned Tacit</p>
Firm C	<p>1. Market research and manager's experience in new European markets</p> <p>2. Re-structure overseas sales operations in the US and improved head office administration, information technology and MIS</p> <p>3. New product development (NPD)</p>	<p>1. New European marketing manager spends 50% in time in UK head office to communicate market knowledge.</p> <p>2. Changes communicated formally to all staff and technical and clinical staff given formal re-training</p> <p>3. Weekly video conference, presentations and lunch between the UK, European and US staff with all staff invited to exchange NPD ideas</p>	<p>1. Business model developed to enhance cross border transfer of market knowledge</p> <p>2. Formal training programme to transfer new overseas sales model and new management information system</p> <p>3. Formal presentations and staff conference to promote knowledge sharing between departments</p>	<p>Planned Explicit and tacit</p> <p>Planned Explicit</p> <p>Planned Explicit and tacit</p>
Firm D	<p>1. International Franchising: retail outlet/ shop design and Web design</p> <p>2. Increased overseas sales effort</p> <p>3. New management</p>	<p>1. Project teams, comprising firms marketing and design staff, external consultants and firm's lawyers</p> <p>2. Language graduates recruited and trained as sales employees to support overseas distributors and agents, attend regular sales training and conferences with senior managers in the UK</p> <p>3. Two levels of management created,</p>	<p>1. Formal project management approach to share firm's and external consultants' expertise</p> <p>2. Formal sales training programme to transfer managers' knowledge and expertise to overseas employees.</p> <p>3. Implementation of</p>	<p>Planned Explicit and tacit</p> <p>Planned Explicit and tacit</p> <p>Planned</p>

	structure	both senior and functional managers share expertise with project teams	new organisational structure	Explicit
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Source: Developed from archival data and CEO interviews

²*Formality in Knowledge Assimilation

Formality in Knowledge Assimilation

The knowledge assimilation process involved considerably high levels of firms' formal planning to share knowledge (Table 1). The case studies show how all firms developed formal knowledge assimilation processes to share and assimilate knowledge. These processes involved two formal aspects; a planned approach to share tacit and explicit knowledge and the conversion of tacit to explicit knowledge. As firms internationalised, management created routines to share knowledge amongst functional, technical and commercial managers, project teams, overseas managers, and overseas employees. This involved formal planned events such as meetings, presentations and training.

Tacit knowledge sharing

All firms engaged in sharing experience through planned tacit to tacit knowledge exchange. Sharing experience and tacit knowledge formally was important for both the start ups and established firms. The start up firms A and B assimilated tacit knowledge through formal planned meetings with staff, an important aspect of knowledge sharing was assimilating knowledge from partners. Firm C used weekly meetings and discussions via video conferencing between the UK and the US, and brought the European marketing manager regularly to the UK to share experiences gained. Firm D sharing through creating cross-team working processes via the creating of project groups and working closely with overseas staff through visiting overseas operations and bringing staff to the UK. Thus we found that it was important for firms to create formal processes to share experiential and tacit knowledge in a planned way. A planned approach was also taken by firms to the sharing of explicit knowledge in the form of external published information and the firm's objective search. In firm A the CEO shared publications about Chinese culture other directors, and in firm C, the marketing manager presented formal market research carried out in European markets to UK management.

Converting tacit to explicit knowledge

Firms created processes to share new knowledge by converting individual, experiential, tacit knowledge to objective, explicit knowledge. Where firms had overseas operations and employees, as in firms C and D, assimilating knowledge within the firms involved communicating formally and transferring knowledge to and from overseas employees. Firm C created an improved management

² Planned – systematic processes such as scheduled, planned meetings or events
Explicit - Codified, objective knowledge
Tacit - Experiential knowledge

information system and information technology to gather data to provide feedback to support its US operations, and formal communication and re-training to support its US staff implement new sales operations. Firm D introduced a formal training programme which involved bringing overseas sales employees to the UK for in-house training and sales conferences. The CEO and senior managers prepared presentations and training material to transfer their expertise of the product and markets to the employees. For the start-up firms that had partnerships, formally transferring the firms product knowledge to a partner or agent was important. Firm B had a formal contract with a customer to develop the product and implemented a formal in training programme with a US partner. Firm A prepared reports and made formal presentations to importers about the product it was developing in partnership with an overseas manufacturer. For these start-ups the required high involvement and time commitment in sharing their expertise the partner was unexpected.

Influences on Knowledge Assimilation Processes Over Time

Two group interviews were held to add more insights to the case findings of surprisingly high levels of formality in assimilating knowledge. The case study findings were presented to six internationalising SME CEOs and discussions were held regarding how firms shared knowledge and assimilation processes. Two factors were identified as influencing the formality of assimilation process; the CEO's prior experience and growth/size of firm.

The CEO's prior experience

First, the CEOs prior experience was important in influencing how knowledge was assimilated within the firms. Where CEOs had experience of formal systems, they instigated formal knowledge sharing processes from inception. CEO1 stated:

“There's only around 20 of us. But, again, it's just the way we've always operated because that's the type of company that I worked for. So, I had to have a level of formality about how you pass that information. So, everybody who works for me does the same thing. We try to keep that structure, even though, frankly, it's overkill for some things for a company of 20 people, but I'd rather do that... I'd rather start from there and then diminish a lot of it and be a little looser about the formality than go the other way and try and create it five years into the business

This is supported by the start up case studies A and B where the CEOs had prior international business experience. However, in case study 4 where the CEO's had prior experience of informal structure in the family business, the CEO maintained this preference during earlier domestic growth and exporting but introduced more formal management structure and knowledge assimilation processes (for example planned project groups) when rapid international was embarked on.

The influence of prior experience was evident in the building of management teams and development of organisational structures as firms grew. For example, CEO 3 had previously been employed and trained in a large hierarchical firm and introduced formal systems from an early stage which increased as the firm recruited new directors. The firm operated in a business to business market, servicing large firms with a corporate structure. The CEO stated:

‘We have a very formal process for a small company of 80 employees, a good board team including a finance and operations director who is very good at the systems, and we have introduced new internal processes. We internalise market knowledge, and have project teams working in different countries who share knowledge’.

Formalisation and growth

Second, firm growth and size influenced knowledge sharing processes, however as noted above, even the relatively small firms were formalised. CEO 4 discussed the need to formalise as the firm grew, although they were only a small firm with 20 employees. This was triggered by participating in the internationalisation programme. The CEO stated:

“It depends on the scale of the firm, doesn’t it? We were 20 people (which increased to 31 employees) so we could facilitate it (formality) through the global companies programme. We rolled it out in terms of the team, so most people were involved and the consultant talked to everyone about procedures. We went through the ISO certification at the same time so we were not forced but we had to have the procedures and communication strategies and all these things... It triggered formal processes”.

CEO 6 agreed about size influencing the levels of formality, stating:

“The approach would be different according to different size. Previously we had no more than ten employees, we’re 97% export, about £4 million business and the need to share it with ten people is what we would do in an entrepreneurial business. You’re at a round a table, within an hour you say, well, let’s give it a try. Whereas if I look at the business I’m involved in now, I’m internationalising at the moment, there’s a more structured approach with the management team to have a discussion about the benefits of being in Dubai, South East Asia or wherever, and we do formal research and then we do what we call a pilot study, a cheap entry. I think it is exactly suited, it’s according to the scale, you do it in a different manner”.

Thus we see that the initial formality of firm’s knowledge sharing processes is influenced by the prior experience of the CEOs, but as firm’s embark on rapid internationalise they need to employ formal planning processes to assimilate new knowledge.

Knowledge Assimilation to Support Accelerated Decision-making:

Combining formal and informal approaches

The focus groups supported the case study findings and revealed that firms had a mixture of tacit and explicit knowledge sharing processes, thus incorporated informality in some of their formal assimilation processes. Sharing knowledge in tacit form was recognised as enabling speedy decision-making to support entrepreneurial behaviour, but the approach was formal. CEO 5 commented:

‘We report back from an overseas visit with a one page synopsis, and have a round table discussion. It is not about formalisation through sitting writing reports and papers, it’s about a formalised approach..... Decision-making is quicker at a round table, and deciding which bits of information are important’.

Firms discussed the importance of both having both entrepreneurial (informal) and formal processes. For example CEO 4 raised the issue of both impressions and gut feel, and rational decision making and check lists. The entrepreneurs “gut feeling” from information that is acquired from the market place is important, whilst formalisation and documentation of the processes of questioning is seen as a double check. CEO 4 stated

‘Gut feel is based on something.....information that comes from the market place, formalising the process of questioning helps to establish why something is good for you and helps get the knowledge for the from the back on your mind, it’s your double check”.

One firm (CEO6) changed from informal and opportunistic to a more formal and strategic approach, to support its growth as a result of the internationalisation programme. However the CEO supported the view of the importance of both processes, commenting:

(Becoming more formal) it’s a bit of a pause in entrepreneurial (behaviour). Before I thought if there is an opportunity in Italy I’d buy a (Airline) ticket and go. Now I’d say, wait I need to think about this. Is this the right thing? What happens back at home if I do it?’

Combining approaches was evident in CEO 2’s firm. The time invested (and thus cost in terms of committing resources) to convert tacit to explicit forms of knowledge was an important consideration. Where learning was a one off and not likely to be used again in the same context, the firm retained the knowledge in tacit form. Although CEO 2’s firm had many formal informational processes (standardised systems and processes, minutes of meetings, market visit reports, formal graduate programme), the experience and knowledge gained from the acquisition of a new subsidiary was not formally documented. Learning was through informal discussions with staff involved in the acquisition. No manual or papers were created as the firm didn’t expect to make another similar company acquisition. The view was that the lessons learnt might be a one off and not work in a different context or country. The CEO 2 stated:

‘The people who have the experience of dealing with the acquired company have shared it through informal discussions. It’s not formally documented as I don’t think we will be acquiring many more’.

This was supported by CEO 1, who said: ‘Having a manual is no guarantee it will work. It’s all about culture’.

Barriers to knowledge assimilation: losing tacit knowledge and resistance to change

However, difficulties of assimilating tacit knowledge were identified. Firms recognised that it is difficult to share all tacit ‘ingrained’ knowledge (CEO 5), and some may be lost if staff leave the firm. This was an important issue for CEO 5 where most of the management team that participated in the programme subsequently left the firm. In this case the CEO described himself as the ‘centre of information’, whereby he had to ‘pick up the pieces’. In this case, in addition to his own role as CEO, he had taken on the role of production and sales director to ensure knowledge is not lost. Changing knowledge assimilation processes in the overseas company CEO 2’s acquired as part of its growth strategy was problematic. It was more difficult to standardise systems and processes in an acquisition where the previous owner was still involved and resistant to change, than when the CEO had set up the business and other FDI through green-field investment. The CEO stated:

‘We operate in six countries and in only one did we acquire a company, it has been a very different beast in terms of standardising systems and processes it was quite a challenge’.

Learning from internationalisation for domestic growth

As well as transferring knowledge assimilation processes across international markets, firms may use these learning processes to support domestic growth. The transfer of knowledge from across different international markets was discussed by CEO 5, who used the same knowledge sharing processes learnt on the internationalisation programme when opening a new subsidiary in the domestic market and to other geographical markets. CEO 5 stated:

‘Formal processes you go through in an international market exercise are transferable in the expansion into a different geography, sector, or product and the home market..... it’s very applicable, the same principles’.

Thus, the formality necessary for internationalisation can have important learning benefits for firms as they transfer the processes to domestic operations.

To summarise, the findings of this study highlight the use of formal Knowledge assimilation processes by rapidly internationalising SMEs. Formality was influenced by CEO’s prior experience which could be of formality or informality. In the case of international new ventures, the CEOs’ prior international experience and knowledge influenced the firms, they instigated formal procedures from inception. In

other firms these processes were required after inception to support their international growth when they embarked on rapid internationalisation. Even where the CEO had prior experience and preferences for informal processes for example case 4, rapid international growth resulted in the instigation of formal planned processes. Findings suggest that these growth orientated entrepreneurial firms were faced with the tensions of engaging in formal knowledge sharing and assimilation to manage learning and maintain entrepreneurial, opportunity based behaviour required to enable the speedy decisions support their internationalisation. Firms were formal in their knowledge assimilation processes, and employed planned approaches such as schedule meetings, formal presentations, conferences and training. These methods were used to assimilate tacit and explicit knowledge. This combination of formally planned explicit and tacit knowledge sharing processes are important to help firm balance the tensions of supporting rapid growth and maintaining an entrepreneurial orientation.

5. DISCUSSION

This qualitative enquiry, based on four longitudinal case-studies and two focus groups seeks to shed light on how internationalising SMEs assimilate knowledge. The rationale for this inductive theory-building study is that while scholars such as Nummela et al (2006) point out that organisational structure and processes are likely to evolve as firms internationalise and grow, we know little about *how* they assimilate knowledge. This is a gap that warrants attention given that the strategy and entrepreneurship literatures provide indication that there is likely to be a tension between more and less formality in learning processes (Baron et al, 1999; Burton, 2001; Eisenhardt and Zbaracki, 1992; Fletcher and Harris, 2002; Levy and Powell, 2000). However because internationalisation entails rather high levels of learning-intensity, findings from the broader literature, while insightful, do not necessarily translate very well to the domain of internationalisation. Hence, our study.

The findings indicate a surprisingly high degree of formality in the assimilation processes used by SMEs, while at the same time, considerable informality being retained. Synthesising the findings of the case studies and focus groups with the preceding review of the literature, we are able to identify *both* formal and informal means of knowledge assimilation by SMEs. Essentially, the interesting insight that we provide relates to how rapidly internationalising small firms manage the tension between the need for greater formality on the one hand (in order to be efficient at learning) and informality on the other (in order to ensure accelerated decision-making). The insight is as follows: *both* more formal assimilation (involving codification of tacit to explicit and less formal assimilation (involving the retention of tacit knowledge as tacit) is underpinned by relatively high levels of formality in terms of planning which is manifested primarily in the form of meetings, and other formal events. That is, returning to the three constructs we highlight earlier on, we are making the point that formal planning underpins the assimilation of tacit and explicit knowledge. However the formalisation is from an early stage in rapid internationalisation and is not a gradual process as suggest

by previous literature in exporting and other studies (e.g. Leonidou and Katsikeas, 1996; Fletcher and Harris, 2002; Levy and Powell, 2000). The transfer of knowledge in a tacit to tacit form was important for firms to maintain an entrepreneurial orientation and speed decision-making (Lumpkin and Dess, 1996; Eisenhardt and Zbaracki, 1992). However the risk is that this knowledge can be difficult to assimilate and lost to the firm (Nonaka, 1994). To overcome this barrier to learning, firms needed to formalise the process by converting tacit to explicit knowledge or put considerable effort to transferring tacit knowledge. Furthermore, contrary to Autio et al (2000) but in support of Autio et al 2010, we find that young firms can suffer from inertia where they need to learn new capabilities to support rapid internationalisation.

This fairly fine-grained insight into the blackbox of organisational activity is, we would contend, all too rare in international entrepreneurship research. We believe it represents a novel and interesting finding that helps us understand better how rapidly internationalizing firms resolve the tension articulated above. The contributions and implications of this study are discussed below.

Contributions

First, the study contributes to the international entrepreneurship literature by examining the assimilation processing of internationalising SMEs. Despite the widespread recognition that internationalisation is a learning-intensive process (Johanson and Vahlne, 1977; Jones and Coviello, 2005; Oviatt and McDougall, 1994), there is still little understanding of how learning and assimilation, in particular, occurs. The internationalisation setting of the study usefully brings into relief the relevance of formalisation even to relatively small firms. The findings from this study not only confirm the importance of formality but additionally indicate a surprisingly higher degree of formality than might be expected for very small young firms. We suggest that the internationalisation context that we focused upon represents a novel and challenging organisation process for these organisations which in turn leads them to formalise rapidly. This is significant because there may be scope for unexpected spatial transfers of knowledge – specifically, the transfer of firm specific, generalisable internationalisation knowledge back into the *domestic* market (Erkisson et al, 1997). In sum, this paper offers a more in-depth understanding of how assimilation occurs in internationalising small firms and thus addresses calls to advance scholarship on how these firms “assimilate knowledge that exists in their external environment and make use of it in their operations” (Zahra, 2005: 24).

Second, an important contribution of the study is that it reframes the formal-versus-informal debate for SMEs by identifying the prospect of SMEs exhibiting formality *and* informality in their knowledge assimilation processes. This insight results from the longitudinal and multi-data approach taken. In particular, the study reveals that knowledge may be assimilated less formally while utilising elements of formality. This insight is vital in that it reveals how internationalising SMEs may overcome, to

some extent, the conflict between the need to be efficient (high formality) and make rapid decisions (low formality). The findings shed much needed light on what entrepreneurs and managers actually *do* in order to assimilate acquired knowledge over time (Jones and Coviello, 2005). The study provides a vivid picture of how over time firms may endeavour to ensure that more and less formality co-exist which in turn ensures the continuation of the learning process. By implication, then, it may be that the capacity of internationalising SMEs to innovatively tackle the more-versus-less formality tension in assimilation, and other, learning processes represents a vital capability. Such capabilities are valuable given that “internationalization is not a one-shot deal, and that there is considerable room for learning” (Zahra, 2005: 27). It is also noted that the findings on simultaneous high and low formality potentially hold relevance to the learning literature more broadly, thus demonstrating how research on internationalisation can provide valuable theoretical insight beyond its immediate context.

Managerial and Policy Implications

This study also has important normative implications. It is important for firms to develop appropriate knowledge assimilation processes within their management systems to support internationalisation. These are important to capture experience and share acquired internationalisation related knowledge within the firm. In particular, it appears useful for SMEs to adopt a *combination* of formal and informal learning processes within the context of organisational structures preferred by founding entrepreneurs and top management teams (Burton, 2001). It is also important for the CEO and management team to take the lead in marshalling commitment to learning processes and to cultivate an organisational culture that is supportive of learning. All of these insights are relevant to policy makers.

It is suggested that learning capabilities should be included in support for internationalising SMEs, recognising the importance for firms to increase their absorptive capacity to support their growth. These learning processes include the establishment of internal procedures and systems to share knowledge and convert tacit to explicit knowledge. The public sector could have a role to play to help firms identify these learning needs, and promote the development of generic, transferable learning capabilities. This could offer cost saving advantages in the provision of support to internationalising SMEs, but the internationalisation focus of the Scottish Enterprise Global Companies Development Programme was important when attracting firms. It would be a challenge for the public sector to recruit firms to a generic learning programme.

Future Research and Limitations

This research was conducted on internationalising firms that were actively learning and acquiring new knowledge, thus limits the findings to such firms rather than SMEs in general. However there is evidence that there was a transfer of learning to domestic operations, future research could fruitfully explore how learning gained from international operations may be transferred to the domestic setting.

The CEOs of the firms in this study had prior, accumulated entrepreneurial experience which we would expect, as founders of INVs have been found to be alert to new international opportunities because of the previous knowledge and learning acquired in earlier activities (McDougall et al, 1994). There may be important learning differences between experienced and novice entrepreneurs in terms of knowledge assimilation processes (Westhead et al, 2003, 2005). Rapid internationalisation offers potential high growth for SMEs (Autio et al, 2000), however it is a high risk activity (Sapienza et al, 2006). It is possible that this perceived high risk influences the formality of firms' structures to manage this risk and is worthy of further research. In addition to further qualitative enquiries into the learning processes of SMEs, it would be useful if in the future large-sample quantitative studies were also conducted to test the theory developed through qualitative research.

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Appendices

Appendix 1 - Research Design

Preliminary stage	Sample Recruitment, Validation and Selection. - Programme assessment and case selection	Identification programme for suitability for research aims Negotiation of access to firms, archival data and programme managers and executives
		Identification from programme data base and checking suitability of firms Negotiation of access with CEOs
Stage 1	Phase One of case data collection and preliminary analysis	Programme archival data collection (consultants' case studies and company profiles) for triangulation and analysis
		Initial interviews with programme executives 4 Telephone interviews with case study firms' local programme managers 12 Monthly meetings with executives to triangulate issues highlighted by CEOs.
		Selection of 4 cases to investigate knowledge assimilation processes 4 x 60 minute semi-structured interviews with CEOs
		Inductive coding of data using NVivo
	Phase Two of case data collection and preliminary analysis	4 Telephone interviews with cases study firms' local programme managers.
		4 x 60 minute semi-structured interviews with CEOs
		12 Monthly meetings with executives (as phase 1)
		Inductive coding of data using NVivo
	Phase Three of case data collection and preliminary analysis	4 Interviews with CEOs of firms
		4 Quarterly meetings with programme executives
		Inductive coding of data to allow within case and cross case analysis as proposed by Miles and Huberman (1994)
	Overall Data Analysis	Analysis of 4 firms selected as this was deemed sufficient allow data saturation A case record prepared for each, collating data from phases 1-3.
		Theoretical development of coding categories from internationalisation and learning literature
		Iterative process of coding against inductive and theoretical codes to identify key themes, cross case analysis
Stage 2	Group Interviews	Identification of suitable sampling frame from Scottish Enterprise database
		Two focus groups with 6 participants to gain further insights into formality and informality in knowledge assimilation
		1 interview with programme executive and access to archival data to corroborate focus group data
		Explore themes which emerged from the case study analysis
		Coding against inductive and theoretical codes

Appendix 2: Key information on case-study firms

Firm	Business Activity	Start year	Number of employees 2001→2005	Internationalisation plan
Firm A	Clothing manufacturer	2005	NA - 4	Design innovative electronic garment. Transfer manufacturing abroad
Firm B	Aviation software	2001	2→ 24	Internationalise new idea for airport management. Initial plan to enter US market.
Firm C	Optical eye testing	1993	81→ 115	Market penetration the US and Canada. Develop new products for international markets. New market entry in international European countries.
Firm D	Clothing manufacturer	1960	63→ 215	Expansion in existing domestic and overseas markets through retail, franchising and wholesale. Introduction of new products. Focus on US subsidiary. Expansion in new overseas markets.

Source: Developed from archival data and interviews with case study firms

Appendix 3 – Key information on focus group participants

CEO	Business Activity	Start year	Number of employees	Internationalisation plan
CEO 1	Semi- conductor technology	2001	27	Develop new processes and technologies to enter new international markets in the US and far East
CEO 2	Alloy processing manufacturer	1996	180	Expand manufacturing and sales in the US and open sales office. Start manufacturing in Europe.
CEO 3	Marketing and Communications	1979	80	Identify new overseas markets and develop market entry strategies.
CEO 4	Technology, re-manufacturing sales and distribution	1999	31	Enter new overseas markets in China and Asia
CEO 5	Specialist textile design, manufacture and wholesale.	1800s	98	Launch new products, extend existing overseas activities in the US, Canada and Northern Europe and expand into new markets
CEO 6	Electrical support and instrumentation for drilling sector in the oil and gas industry.	1998	30	Expand in Singapore, Brazil, West Africa, Europe, South American and Canada.

Source: Developed from archival data and CEO interviews